In the Claims

1. (Original) A Coriolis flow meter comprising:

at least one flow conduit;

a drive system coupled to the at least one flow conduit;

a balance system coupled to the at least one flow conduit; wherein the balance system is sized and located such that the momentum of the balance system is equal and opposite to the momentum of the drive system.

2. (Original) The Coriolis flow meter of claim 1 wherein the balance system comprises a balance mass.

3. (Original) The Coriolis flow meter of claim 1 wherein the balance system is sized and located such that the combined center of mass of the drive system and the balance system lies proximate a plane of the centerline of the at least one flow conduit.

4. (Original) The Coriolis flow meter of claim 1 wherein the balance system comprises a balance mass coupled to the at least one flow conduit using a leaf spring.

5. (Original) The Coriolis flow meter of claim 4 wherein the leaf spring stiffness and the balance mass cause the natural frequency of the balance system to be less than the drive frequency of the flow meter.

6. (Original) The Coriolis flow meter of claim 1 wherein the balance system vibrates out of phase with the at least one flow conduit.

7. (Original) The Coriolis flow meter of claim 1 wherein the balance system is located on the opposite side of the at least one flow conduit from the drive component and at an orientation substantially forty-five degrees to a plane of the flow conduit.

8. (Original) The Coriolis flow meter of claim 1 wherein the balance system is located on the opposite side of the at least one flow conduit from the drive component.

9. (Original) The Coriolis flow meter of claim 1 wherein the balance system is sized and located such that the momentum of the balance system is equal and opposite to the momentum of the drive system in a direction perpendicular to a drive motion.

10. (Original) A method for force balancing a Coriolis flow meter having at least one flow conduit, the method comprising the steps of:

coupling a drive system to the at least one flow conduit;

coupling a balance system to the at least one flow conduit; and

locating and sizing the balance system such that the momentum of the balance system is equal and opposite to the momentum of the drive system.

11. (Original) The method of claim 10 including the step of forming the balance system using a balance mass.

12 (Original) The method of claim 10 further comprising the steps of locating and sizing the balance system such that the combined center of mass of the drive system and the balance system lies proximate a plane of the centerline of the at least one flow conduit.

13. (Original) The method of claim 10 wherein the step of coupling a balance system to at least one flow conduit comprises the steps of coupling a balance mass to at least one flow conduit using a leaf spring.

14. (Original) The method of claim 13 including the step of choosing the leaf spring stiffness and the balance mass such that the natural frequency of the balance system is below the drive frequency of the flow meter.

15. (Original) The method of claim 10 including the step of vibrating the balance system out of phase with the at least one flow conduit.

16. (Original) The method of claim 10 wherein the step of locating the balance system comprises the steps of:

locating the balance system on the opposite side of the at least one flow conduit from the drive system; and

orientating the balance system substantially forty-five degrees to a plane of the flow conduit.

17. (Original) The method of claim 10 including the step of locating the balance system on the opposite side of the at least one flow conduit from the drive system.

18. (Original) The method of claim 10 wherein step of locating and sizing the balance system comprises the steps of locating and sizing the balance system such that the momentum of the balance system is equal and opposite to the momentum of the drive system in a direction perpendicular to a drive motion.